IN THE CLAIMS:

Please **AMEND** claims 1, 3, 4, 7, and 10, and **ADD** claims 13-20 in accordance with the following:

1. (CURRENTLY AMENDED) An encoding method using a low density parity check (LDPC) matrix, the method comprising:

generating code word vectors by generating column parity information using a parity check matrix and message information;

selecting code word bits for generating row parity information ~~among~~ using code word bits ~~from which~~ not including other code word bits related to generation of ~~the~~ same row parity information among code word bits in the generated code word vectors ~~are excluded~~; and

generating the row parity information using the selected code word bits.

2. (ORIGINAL) The method of claim 1, wherein the selecting of the code word bits is performed on the basis of locations where components of the parity check matrix are 1.

3. (CURRENTLY AMENDED) The method of claim 1, wherein ~~the selecting of the code word bits comprises~~:

~~if the~~ a first code word bit is related to the generation of the row parity information, ~~and if,~~ ~~in~~ ____ a row number where a component corresponding to the first code word bit in the parity check matrix is 1,

a component corresponding to ~~the~~ a second code word bit in the row of the parity check matrix is 1, and

the selecting includes selecting a certain code word bit among residual code word bits and not selecting ~~except~~ the second code word bit as a code word bit for generating the row parity information.

4. (CURRENTLY AMENDED) The method of claim 1, wherein

the selecting of the code word bits comprises:

selecting a certain code word bit of the code word vector as a first selection code word bit;

generating a first selection group including residual code word bits ~~except~~ other

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than code word bits correlated with the first selection code word bit in the code word vector; and

selecting another certain code word bit among code word bits of the first selection group as a second selection code word bit and which is not correlated to the first selection code word bit, and

~~wherein if~~ there is a correlation between the first and second selection code word bits when the first selection code word bit is related to the generation of row parity information, ~~and if, in~~ a row number where a component corresponding to the first selection code word bit in the parity check matrix is 1, and a component corresponding to the second selection code word bit in the row of the parity check matrix is 1~~, there is a correlation between the first and second selection code word bits~~.

5. (ORIGINAL)The method of claim 1, wherein the selecting of the code word bits is performed on the basis of a factor graph of the parity check matrix.

6. (ORIGINAL) The method of claim 5, wherein the selecting of the code word bits comprises:

generating the factor graph of the parity check matrix;

extracting code word bits for generating the same column parity information on the basis of a connection relationship between column nodes included in the factor graph; and

selecting a certain code word bit among residual code word bits except the code word bits for generating the same column parity information as a code word bit for generating row parity information.

7. (CURRENTLY AMENDED) The method of claim 6, wherein the generating of the factor graph comprises:

arranging row and column nodes corresponding to row and column numbers of the parity check matrix, respectively; and

~~when~~ where components in locations corresponding to the row and column numbers of the parity check matrix are 1, connecting the row and column nodes with connection lines.

8. (ORIGINAL) The method of claim 6, wherein the extracting of the code word bits comprises:

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selecting a certain code word bit in the code word vector as the first selection code word bit;

extracting a first column node corresponding to the first selection code word bit from the factor graph;

extracting a certain second column node among residual column nodes except all column nodes connected to the first column node via connection lines; and

selecting a code word bit corresponding to the second column node as the second selection code word bit.

9. (ORIGINAL) The method of claim 8, wherein the column nodes connected to the first column node via connection lines comprises all column nodes connected to the first column node via certain row nodes.

10. (CURRENTLY AMENDED) A method of selecting code word bits used for generating parity information in an information generating operation using an low density parity check (LDPC) LDPC matrix, the method comprising:

selecting a first code word bit; and

selecting a second code word bit among residual code word bits except not including code word bits having a correlation with the first code word bit,

wherein ifthe correlation exists between the first and second code word bits when the first code word bit is related to the generation of row parity information, and if, in a row number where a component corresponding to the first code word bit in the parity check matrix is 1, and a component corresponding to the second code word bit in the row of the parity check matrix is 1, there is a correlation between the first and second code word bits.

11. (ORIGINAL) The method of claim 10, wherein the correlation is achieved when a column node corresponding to the first code word bit is connected to a column node corresponding to the second code word bit in a factor graph of the parity check matrix.

12. (ORIGINAL) The method of claim 11, wherein the correlation is achieved when the column node corresponding to the second code word bit is connected to the column node corresponding to the first code word bit via a certain row node in the factor graph of the parity check matrix.

13. (NEW) A method of optically transferring data, the method comprising transferring data with respect to an optical medium using a low density parity check (LDPC) matrix, wherein the data on the optical recording medium is encoded using generated row parity information of the LDPC matrix is generated by generating code word vectors by generating column parity information using a parity check matrix and message information; selecting code word bits for generating row parity information using code word bits not including other code word bits related to generation of same row parity information among code word bits in the generated code word vectors; and generating the row parity information using the selected code word bits.

14. (NEW) The method of claim 13, wherein the transferring comprising:
encoding data using the generated row parity information of the LDPC matrix; and
recording the encoded data on the optical medium.

15. (NEW) The method of claim 13, wherein the transferring comprising:
reproducing the encoded data from the optical medium; and
decoding the read encoded data according to the generated row parity information of the LDPC matrix.

16. (NEW) A method of wirelessly transferring data, the method comprising transferring data using a low density parity check (LDPC) matrix, wherein the data is encoded using generated row parity information of the LDPC matrix is generated by generating code word vectors by generating column parity information using a parity check matrix and message information; selecting code word bits for generating row parity information using code word bits not including other code word bits related to generation of same row parity information among code word bits in the generated code word vectors; and generating the row parity information using the selected code word bits.

17. (NEW) The method of claim 16, wherein the transferring comprising:
encoding data using the generated row parity information of the LDPC matrix; and
wirelessly transmitting the encoded data.

18. (NEW) The method of claim 16, wherein the transferring comprising:

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wirelessly receiving the encoded data; and

decoding the received encoded data according to the generated row parity information of the LDPC matrix.

19. (NEW) The method of claim 16, wherein:

the selecting of the code word bits comprises:

selecting a certain code word bit of the code word vector as a first selection code word bit;

generating a first selection group including residual code word bits other than code word bits correlated with the first selection code word bit in the code word vector; and

selecting another certain code word bit among code word bits of the first selection group as a second selection code word bit, and

there is a correlation between the first and second selection code word bits when the first selection code word bit is related to the generation of row parity information, a row number where a component corresponding to the first selection code word bit in the parity check matrix is not zero, and a component corresponding to the second selection code word bit in the row of the parity check matrix is not zero.

20. (NEW) An optical system including a decoder to decode data according to the method of claim 15.